



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,195	02/26/2002	Li-Der Cheng	CHENG=47	4345

7590 02/17/2004
BROWDY AND NEIMARK, P.L.L.C.
Suite 300
624 Ninth, N.W.
Washington, DC 20001

EXAMINER

LEFLORE, LAUREL E

ART UNIT	PAPER NUMBER
----------	--------------

2673

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,195

Applicant(s)

CHENG ET AL.

Examiner

Laurel E LeFlore

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because Fig. 2 is a cross sectional view of the mouse assembly, but it does not show many of the features of the invention as shown in figure 1. All features of the invention should be shown and labeled. For example, the placement of the legs 26 is unclear as they are unlabeled and the springs 27 are not shown in figure 2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 2, paragraph [0010], line 1, "Figs. 1 to 3" should be "Figs. 1 to 4".
Appropriate correction is required.
3. The abstract of the disclosure is objected to because in line 5, "limited" should be "limit switch". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 discloses "a flexible water-proof plate mounted to a top of the protrusion of the frame and having an aperture with which the trace sphere is engaged." This is also recited in lines 1-2 of paragraph [0011] of the specification. Paragraph [0013], lines 2-3, further disclose. "the water-proof plate ensures that no liquid or particles will enter into the passage of the protrusion 21". It is unclear how the water-proof plate is able to ensure that no liquid or particles enter the passage. The water-proof plate contains an aperture with which the trace sphere is engaged. If the water-proof plate formed a water-proof seal, which would be necessary in order to "ensure that no liquid or particles will enter into the passage of the protrusion", how is the trace sphere able to rotate? If the trace sphere cannot rotate, how can motion be detected? It is unclear how water and particles would be blocked with a water-proof plate that has an aperture in which the trace sphere can move.

Claim 1 further discloses a "reflection board". Also disclosed in paragraph [0012], lines 1-3 of the specification, "A reflection board 28 is received in the protrusion 21 and located below the trace sphere 24. A circuit board is connected to an underside of the frame 2 and located below the reflection board 28." Here the function of the reflection board is unclear. The reflection board could be a component of the mouse's optical system, if the mouse were an

optical mouse. Alternately, the reflection board could offer some reflection of the force or pressure exerted on the mouse when limit switch 31 is activated.

However, the specification is not enabling as to the function of the reflection board, and it is unclear as to which, if either, of these is the correct function of the reflection board.

Claim 5 discloses, "a length of each of the legs is shorter than a distance from the circuit board to the limit switch." This is also disclosed in paragraph [0013], lines 3-6. However, in figure 2, it appears that the legs (although not labeled) extend from above the circuit board (also not labeled) to below the switch 31. Thus, the length of each of the legs is longer than a distance from the circuit board to the limit switch. Also, in figure 4, the legs 26 appear again to begin above the circuit board 3. Although in this figure, the switch 31 extends below the legs, it appears that the legs are longer than the distance between the circuit board 3 and the switch 31. The difference between figures 2 and 4 raises a further question as to whether the switch extends below the legs or vice versa.

Claim Rejections - 35 USC § 103

6. Claims 1-5, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong 5,565,891 in view of Pandolei 5,214,415.

In regard to claim 1, Armstrong discloses a mouse assembly comprising (see figure 2): a base (element 10) having an open top and a frame received in the open top of the base. Thus, a frame is disclosed. See column 6, lines 18-23, disclosing, "Lower and upper members 20, 22 in this example are rigidly

connected to one another via vertically oriented rigid connecting posts 24.” The frame having a protrusion which has a passage defined therethrough and a trace sphere is rotatably engaged with passage of the frame. Further see column 6, lines 27-29, disclosing, “Upper member 22 includes an opening 26 in which trackball 12 resides and extends partly therethrough.”

Armstrong further discloses a reflection board received in the protrusion and located below the trace sphere. See column 10, lines 32-48, disclosing “stationary shelf 38”. Stationary shelf 38, placed underneath foam rubber 30, acts as a reflection board, as best understood, because it is stationary against movement of the carriage and foam rubber. This reflection board is located just below the foam rubber 30, and is thus below the trace sphere. Further see figure 2. In this figure, element 20, the lower member of the frame, also may constitute a “reflection board”, as best understood, since the foam rubber 30 is located beneath it. Hence, it is resilient against the give of the foam rubber. Note its previously disclosed rigidity.

Armstrong further discloses a circuit board connected to an underside of the frame and located below the reflection board. See column 11, lines 37-42, disclosing the preference “that most all of the circuits, switches and sensors be mounted on carriage 14, and more particularly the lower member 20”. Note the placement of switch 110 in figure 2, which is mounted underneath lower member 20. Thus, circuitry is connected to an underside of the frame. Thus, if lower member 20 is, as best understood, a “reflection board”, circuitry is mounted

below it. Also see column 11, lines 56-57, disclosing, "lower member 20 may be a printed circuit board". Further, the placement of circuitry on the upper or lower side of lower member 20 is simply a shift in the location of parts and is a matter of design choice (In re Japikse, 86 USPQ 70 (CCPA 1950)). Also, lower member 20 may serve as both a reflection board, as best understood, and a circuit board, while the immediate invention recites them as separate parts. However, there is no disclosed criticality in making these parts separable, and thus to make these parts separable is a matter of design choice (Nerwin v. Erlichman, 168 USPQ 177).

Armstrong further discloses electronic parts and a limit switch connected to an underside of the circuit board, the limit switch adapted to face a surface on which the base is put. See previous paragraph and note limit switch 110 in figure 2.

Armstrong does not disclose that the mouse assembly comprises a flexible water-proof plate mounted to a top of the protrusion of the frame and having an aperture with which the trace sphere is engaged. However, Pandolei 5,214,415, discloses a cursor control assembly in which (see column 3, lines 17-23 and figures 2 and 3), "A pliable plastic seal 31 is also secured to the housing 10 around the periphery of the opening 11...The seal 31 is made of a pliable low-friction material such as Teflon or Rulon and excludes environmental contaminants such as water, sand and dirt from the housing interior".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the inventions of Armstrong and Pandolei by adding a pliable plastic seal, as in the invention of Pandolei, to the invention of Armstrong. One would have been motivated to make such a change, thus having a flexible water-proof plate, based on the teaching of Pandolei to have such a seal in order to exclude environmental contaminants such as water, sand and dirt from the housing interior.

7. In regard to claim 2, Armstrong discloses that the frame has a plurality of legs. See figures 1 and 2, element 24. Armstrong further discloses an under board connected to an underside of the base. See the bottom side of element 10 in figure 2. This constitutes an underboard. Armstrong further discloses springs biased between the legs and the under board. See figure 2, element 30. Also see column 8, lines 54-62, disclosing, "Foam rubber 30 being compressible will allow the user to push down on trackball 12...to activate the down sensor 110. This pushing down compresses the foam rubber 30, and when the user releases the downward pressure, the foam rubber 30 being resilient pushes carriage 14 upward again to deactivate the down sensor 110". In this way, the foam rubber functions as springs and thus constitutes springs.

Armstrong does not disclose that each leg has a spring connected thereto. However, there is no disclosed criticality of connecting the springs to each leg. The placement of the rubber foam 30 has the same function that is disclosed in the springs of the immediate invention, to absorb the shocks that could be

applied to the whole assembly. Thus, shifting the location of parts is a matter of design choice (In re Japikse, 86 USPQ 70 (CCPA 1950)).

8. In regard to claim 3, Armstrong discloses a retaining collar received in the passage in the protrusion and a lower portion of the trace sphere being engaged with the collar. See figure 2, depicting such an arrangement of a retaining collar, element 16 in the passage in the protrusion with a lower portion of the trace sphere being engaged with the collar. Also see column 6, lines 64-65, disclosing "collet 16 retains trackball 12".
9. In regard to claim 4, see rejection of claim 1. Pandolei further discloses a protection plate engaged with the aperture of the flexible water-proof plate so as to retain an upper portion of the trace sphere. See figure 4 and column 2, lines 62-66, disclosing, "a ring-shaped conductive brush...is mechanically 7 secured to the base 16, surrounds the periphery of the opening 11, and electrically connects to the conductive coating 18 to the conductive ball 14." See figure 3, depicting this ring engaged with the aperture of the flexible water-proof plate. This ring serves as a protection plate, according to the immediate invention, in that (see paragraph [0011] of the specification of the immediate invention) it "is engaged with the aperture of the flexible water-proof plate 13 so as to retain an upper portion of the trace sphere 24 from being disengaged from the flexible water-proof plate 13". It is understood that the ring retains an upper portion of the sphere, since it is electrically connects to it and surrounds the periphery of the opening for the trace sphere.

10. In regard to claim 5, Armstrong discloses an invention similar to that which is claimed in claim 5. See rejection of claim 1 for similarities. Also see 35 U.S.C. 112, first paragraph, rejection of claim 5. Armstrong does not disclose that a length of each of the legs is shorter than a distance from the circuit board to the limit switch. However, the invention of Armstrong has a switch (see figure 2, element 110) that is activated by applying pressure to the legs (element 24), thus causing the compression of springs (foam rubber 30). The switch of Armstrong is further deactivated by the resilience of the springs when pressure to the legs is stopped. The disclosed criticality of the legs being shorter than the distance from the circuit board to the switch in the immediate invention is (see paragraph [0013] of the specification of the immediate invention) "so that when the trace sphere 24 is pressed by the users, the limit switch 31 touches the under board 15". As such an activation of the sensor 110 is accomplished in the invention of Armstrong, the length of the legs in comparison to the distance from the circuit board to the switch, as best understood, appears to simply be a change in proportion and thus a matter of design choice (In re Reese, 129 USPQ 402 (CCPA 1961)).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chambers 5,734,374 discloses a trackball with contamination barriers.

Art Unit: 2673

Mailey et al. 5,237,311 and Fox 5,309,172 disclose spring and leg configurations for depressing a trackball.

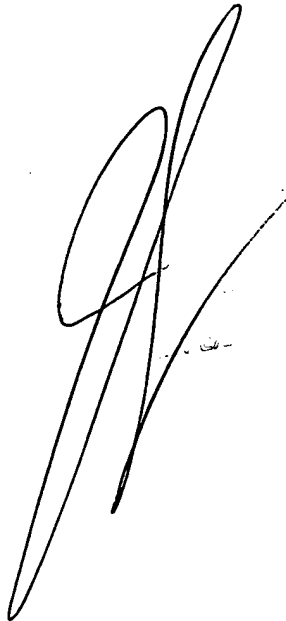
Bidiville discloses a trackball that uses optical reflection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (703) 305-3885. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

LEL

A handwritten signature in black ink, appearing to be 'LEL' with a large, stylized flourish extending upwards and to the right.